Cold Weather Risk Management

Cold Weather Risk Management

Terminal Learning Objective

Action: Manage risk in the cold weather environment

Condition: In a classroom environment and/or under any environmental condition, given the USARAK Pamphlet 385-4, Risk Management for Cold Weather Operations

Standard: Soldier conducted a thorough, written risk assessment IAW USARAK PAM 385-4, Risk Management for Cold Weather Operations

Risk Definitions

- ***Risk Management- a continuous "step by step" process for leaders to identify and control hazards, on any mission and in any environment.***
- ***Risk Assessment- identification and assessment of hazards***
- ***Hazard- any actual or potential condition that can cause damage to personnel, the mission, or equipment***
- ***Risk- possibility of the hazard occurring, expressed in terms of probability and severity***
- ***Probability- likelihood that hazard will occur***
  - ***Frequent- occurs often, continuously***
  - ***Likely- occurs several times***
  - ***Occasional- occurs sporadically***
  - ***Seldom- remote possibility***
  - ***Unlikely- can assume it will not occur***

Risk Definitions Cont.

- ***Severity- degree of damage to personnel/ equipment/mission***
  - ***Catastrophic- Death, permanent damage, major damage to equipment, loss of ability to accomplish mission***
  - ***Critical- permanent partial disability, major equipment damage, significantly degraded mission***
  - ***Marginal- minor damage to personnel/ equipment, minor mission degradation***
  - ***Negligible- little or no adverse impact on personnel, equipment or mission***
- ***Risk Level***
  - ***Extremely High-loss of ability to accomplish mission***
  - ***High- significant degradation of mission capabilities***
  - ***Moderate- expected degradation of mission capabilities***
  - ***Low- expected losses will have little impact on mission***
- ***Control measures- specific actions taken to reduce hazards***
- ***Residual Risk- level of risk remaining after the controls are selected***

Risk Management Process

1. ***Identifying threats.***
2. ***Assessing threats to determine risks.***
3. ***Developing controls and making risk decisions.***
4. ***Implementing controls.***
5. ***Supervising and reviewing.***

Principles for Applying Risk Management

- ***No unnecessary risk should ever be taken***
- ***Risk decision must be made at the appropriate level of command***
- ***Risk is acceptable if potential benefits outweigh potential costs***
- ***Integrate risk management into planning, preparation, and execution at all levels.***
- ***Involve the Soldiers exposed to the risks.***

Hazards

Objective hazards:

- natural processes not influenced by man

- snowstorms lightening, temperature extremes, gravity, darkness, wind, rain, fog, avalanches, rock-fall, high altitude, crevasses, cliffs, cornices

Subjective hazards:

- exist because the soldier is unprepared mentally, physically

- often a result of ignorance, improper training, poor judgement, poor conditioning, along with overconfidence, false pride, apprehension or fear.

Overview of Risk Management Guide

Section I: Risk Assessment for Unit Operations

Section II: Cold Weather Skills Worksheets

Annex A: Universal Risk Assessment Matrix

Annex B: Planning Considerations for Cold Weather Operations

Annex C: Nine Line MEDEVAC request

Annex D: Wind Chill Chart

Annex E: Approval Authority Guidance

Annex F: BRTS Ski March Diagram

Annex G: Risk Assessment for Unit Operations (Blank Copies)

Part I. Identify & Assess Operational Areas / Conditions that are Inherently Risky

- ***Write key mission information pertaining to the listed operational elements under assessment criteria.***
- ***Using the <u>Risk Assessment Matrix for Cold Weather Operations</u>, write the number which most accurately defines the status of the operational element in the appropriate risk value block.***
- ***Total the values and assign an overall risk level to the operation; move on to PART II…***

RISK ASSESSMENT MATRIX FOR COLD WEATHER OPERATIONS

Planning

CIRCLE ONE	Risk Value		SCORE:
Guidance	Preparatory Time		
	Optimum	Adequate	Minimal
FRAGO	3	4	5
OPORD	2	3	4
OPLAN/LOI	1	2	3

Mission Control

CIRCLE ONE	Risk Value		SCORE:
Task Organization	Training Event		
	Support Nontactical/Garrison	Day Tactical	Night Tactical
OPCON	3	4	5
Attached	2	3	4
Organic	1	2	3

Soldier Endurance

CIRCLE ONE	Risk Value		SCORE:
Environmental Preparation	Soldier Preparation		
	Optimum	Adequate	Minimal
Nonacclimated	3	4	5
Part. Acclimated	2	3	4
Acclimated	1	2	3

Soldier Selection

CIRCLE ONE	Risk Value			SCORE:
Task	Soldier Experience			
	Extensive CW Exposure	CWI 2 / Some CW Exposure	CWI 1 / No CW Exposure	MOS Qualified No CW Training
Complex	3	4	5	6
Routine	2	3	4	5
Simple	1	2	3	4

Weather

CIRCLE ONE	Risk Value			SCORE:
Temperature (F) (Spec. Conditions)	Exposure Duration			
	<8 hrs.	8 - 24 hrs.	24 - 72 hrs.	Over 72 hrs.
55 to 33	1	1	2	3
32 to 10	2	2	3	4
9 to -19	3	4	4	5
-20 to -40	5	6	7	8
Below -40	6	7	8	9
(blizzard, ice fog snowstorm, whiteout)	6	7	8	9

Terrain

CIRCLE ONE	Risk Value		SCORE:
Type Terrain	Trafficability		
	Improved	Secondary	Trail / Cross Country
*Mountain	3	4	5
Hills	2	3	4
Flat / Rolling	1	2	3

Rest and Maintenance

CIRCLE ONE	Risk Value		SCORE:
Personnel Rest	Equipment Status		
	Optimum	Adequate	Minimal
<4 hrs. (in 24 hrs.)	3	4	5
6 hrs. (in 24 hrs.)	2	3	4
>8 hrs. (in 24 hrs.)	1	2	3

Numeric Value

1, 2	3, 4	5, 6	7, 8, 9
Low Risk	Medium	**High Risk	***Extreme
7 to 12	13 to 23	24 to 35	36 to 40

Cumulative Score

**** Snow avalanche hazards will often threaten operations; special risk assessment and rescue training required.***

***** High risk operations require coordination, before executing the mission, with the next higher level of command external to the organization making the assessment. If an area receives a 5 or 6 value, the overall rating is high risk.***

****** Extremely high risk operations require the closest scrutiny. If an area receives a 7 or higher value, the overall rating is extreme risk.***

Planning

PLANNING			
Circle one	**Risk Value**		**Score:**
Guidance	**Preparatory Time**		
	Optimum	**Adequate**	**Minimal**
FRAGO	**3**	**4**	**5**
OPORD	**2**	**3**	**4**
OPLAN/LOI	**1**	**2**	**3**

Mission Control

MISSION CONTROL			
Circle one	**Risk Value**		**Score:**
	Training Event		
Task	**Support**		
Organization	**Nontactical/ Garrison**	**Day Tactical**	**Night Tactical**
OPCON	**3**	**4**	**5**
Attached	**2**	**3**	**4**
Organic	**1**	**2**	**3**

Soldier Endurance

SOLDIER ENDURANCE			
Circle one	**Risk Value**		**Score:**
Environmental	**Soldier Preparation**		
Preparation	**Optimum**	**Adequate**	**Minimal**
Nonacclimated	**3**	**4**	**5**
Part. Acclimated	**2**	**3**	**4**
Acclimated	**1**	**2**	**3**

Soldier Selection

SOLDIER SELECTION				
Circle one	Risk Value		Score:	
Task	Soldier Experience			
	Extensive CW Exposure	CWI/2/ Some CW Exposure	CWI/1 No CW Exposure	MOS Qualified No CW Trng
Complex	3	4	5	6
Routine	2	3	4	5
Simple	1	2	3	4

Weather

WEATHER				
Circle one	Risk Value		Score:	
Temperature (F)	Exposure Duration			
(Spec. conditions)	<8 hrs	8-24 hrs	24-72 hrs	>72 hrs
55 to 33	1	1	2	3
32 to 10	2	2	3	4
9 to -19	3	4	4	5
-20 to -40	5	6	7	8
Below -40	6	7	8	9
Blizzard, ice fog	6	7	8	9
Snowstorm, whiteout				

Wind Chill Chart

AIR TEMPERATURE IN FAHRENHEIT

WIND SPEED	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63
10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72
15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77
20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81
25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84
30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87
35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89
40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91
45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93
50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95

$$WCT\ (°F) = 35.74 + 0.6215T - 35.75(V0.16) + 0.4275T(V0.16)$$

Where T is temperature (°F) and V is wind speed (mph)

WIND SPEED BASED ON MEASURES AT 33 FEET HEIGHT. IF WIND SPEED MEASURED AT GROUND LEVEL, M

BY 1.5 TO OBTAIN WIND SPEED AT 33 FEET IN HEIGHT AND THEN UTILIZE CHART.

Terrain

TERRAIN			
Circle one	Risk Value	Score:	
	Trafficability		
Terrain Type	Improved	Secondary	Trail/Cross Country
*Mountain	3	4	5
Hills	2	3	4
Flat/Rolling	1	2	3

*Snow avalanche hazards will often threaten operations; special risk asses
rescue training required

Rest and Maintenance

REST AND MAINTENANCE			
Circle one	Risk Value		Score:
Personal	Equipment Status		
Rest	Optimum	Adequate	Minimal
<4 hrs (in 24 hrs)	3	4	5
8 hrs (in 24 hrs)	2	3	4
>8 hrs (in 24 hrs)	1	2	3

RISK ASSESSMENT WORKSHEET FOR COLD WEATHER OPERATIONS

PART I. Identify & Assess Operational Areas / Conditions that are Inherently Risky.

*Write key mission information pertaining to the listed operational elements under **assessment criteria**. Using the Risk Assessment Matrix for Cold Weather Operations (preceding page), write the number which most accurately defines the status of the operational element in the appropriate **risk value** block. Total the values and assign an **overall risk level** to the operation; move on to PART II...*

ELEMENT	*ASSESSMENT CRITERIA*	*RISK VALUE*
Planning		
Mission Control		
Soldier Endurance		
Soldier Selection		
Weather		
Terrain		
Rest & Maintenance		

OVERALL RISK LEVEL: *TOTAL:* _____

Part II. Assessing threats to determine risks

- ***Assess the specific hazards associated with risky elements of this operation.***
- ***Determine an accurate risk level for each specific hazard by answering these two questions:***
  - ***What is the likelihood of a mishap?***
  - ***What degree of injury or equipment damage is possible?***

The Universal Risk Assessment Matrix (Annex A) describes the various risk levels in detail.

PART III. Develop Control Measures & Re-assess the Overall Risk Level of the Operation

- ***Identify control measures you will implement to minimize (or eliminate) the risks associated with these hazards.***

- ***Re-assess the risk level of these hazards. The Planning Considerations for Cold Weather Operations guide (Annex B) describes many of the mission essentials to consider when operating in cold environments.***

- ***The overall risk level for the mission is now determined by the most serious remaining residual risk level.***

- ***See Annex E for Approval Authority Guidance for residual risk level.***

Part IV. Implement Controls

- ***The procedures for controlling risk must be integrated into plans, orders, standing operating procedures, written and verbal orders, preliminary training, and through other channels that ensure the procedures will be effectively used during the actual operation.***

- ***Implementation involves the entire chain of leadership as a team, assuring that the full range of approved operational risk controls are in place and ready to go.***

Part V. Supervise And Evaluate

- ***The leader uses the same supervision techniques (on-the-scene, spot check, performance indicators) to monitor risk controls that are used to monitor overall operations.***

- ***Continually assess operational risks and evaluate results, including the effectiveness of risk-management controls.***

- ***Information for steps I-V should be recorded on the Risk Management Worksheet.***

1. Organization and Unit									2. Page ____ of _____
3. Mission/Task					4. Date/Time Group Begin: End:				5. Date Prepared:
6. Prepared by: (rank, name, duty position)									
7. Operational phase in which the mission/task will be conducted:									
8. Identified Hazards	9. Assess the Hazards: Initial Risks:				10. Develop Control Measures for Identified Hazards: Specific measures taken to reduce the probability and severity of a hazard	11. Make Risk Decisions: Remaining risks:			12. How to Implement Controls: Include SOPs, references, written and verbal orders, etc.	13. Supervision and evaluation by: Continuous leader checks, buddy system, situation reports, etc.
	L	M	H	E		L	M	H	E		

14. Remaining Risk Level After Countermeasures are Implemented: (circle one)
LOW (L) MEDIUM (M) HIGH (H) EXTREMELY HIGH (E)

15. Risk Decision Authority Level: (approval authority signature block)
If initial risk level is medium, high or extremely high, brief risk decision authority at that level on controls and countermeasure used to reduce risks. (Signature indicates that the appropriate risk decision authority was briefed of the initial risk level, control measures taken and appropriate resources requested).

Quick Reference Guide

Risk Level	Low	Medium	High*	Extreme**
Numeric Value	1,2	3,4	5,6	7,8,9
Cumulative Score	7 – 12	13 –23	24-35	36-40
General Clearance Level Guidelines	Company Commander	Battalion Commander	Brigade; major subordinate command commander	Major subordinate command; major command commander

*High risk operations require coordination with the next higher level of command external to the organization making the assessment.

**Extremely high risk operations require the closest scrutiny. If an area receives a 7 or higher value, the overall rating is extreme risk.

Scenario 1

You are a light infantry bn. rifle platoon leader with a platoon currently at full strength. You have just been tasked by your company commander to prepare your Soldiers for an OPFOR mission and have been provided with a detailed LOI. In 72 hrs. you will depart by vehicle for training area 4A and prepare a hasty defense. Area 4A is generally flat with moderate to heavy forests typical of the terrain surrounding your post, Ft. Freezomo, AK. You will have 12 hrs. upon arrival to prepare positions. You will be required to occupy the positions with 1/3 of your Soldiers at all times. You will not be allowed to have any warming fires or stoves at the positions. Co. A will conduct an assault on your position at 0800 hrs. the following day. After A Co. seizes the objective, vehicles will arrive to move everyone back to garrison. The AAR will be conducted in the rear. It is November 18th and currently snowing hard at a temperature of about 26°F. In two days the weather is expected to clear with temperatures falling to between -30° and -40° for the first time this year.

You have served as 1st plt. leader since last April, however this will be your first winter exercise. All of your squad leaders and the plt. sergeant have served at least one previous winter in the unit, though only one was in 1st plt. last winter. One third of your Soldiers are relatively new and have not experienced a winter training cycle, however they all have received classroom instruction on prevention of cold weather injuries and maintenance of equipment in the cold. The remainder of your Soldiers either served in the platoon the previous winter or have received winter training at their previous unit. This past

MISSION: *OPFOR Defense* *UNIT:* *Infantry platoon*

DATE/TIME:

LOCATION: *Ft. Freezomo, AK* *TERRAIN DESCRIPTION:*

Heavy forests and unimproved road to position

PART I. Identify & Assess Operational Areas / Conditions that are Inherently Risky.

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ELEMENT	ASSESSMENT CRITERIA	RISK VALUE
Planning	*LOI, 72 hours*	**1**
Mission Control	*Organic, Night Tactical*	**3**
Soldier Endurance	*Non-Acclimated, Optimum*	**3**
Soldier Selection	*Routine, some CW exposure*	**4**
Weather	*-30 - -40F; 8-24 hours*	**6**
Terrain	*Flat; secondary roads*	**2**
Rest & Maintenance	*About 8 hours; adequate*	**2**

OVERALL RISK LEVEL: ***High*** ***TOTAL:*** ***21***

1. Organization and Unit: Infantry Platoon									2. Page __1__ of __1__	
3. Mission/Task: OPFOR Defense					4. Date/Time Group Begin: End:				5. Date Prepared:	
6. Prepared by: (rank, name, duty position) LT. BULLWINKLE										
7. Operational phase in which the mission/task will be conducted:										
8. Identified Hazards	9. Assess the Hazards: Initial Risks:				10. Develop Control Measures for Identified Hazards: Specific measures taken to reduce the probability and severity of a hazard	11. Make Risk Decisions: Remaining risks:				12. How to Implement Controls: Include SOPs, references, written and verbal orders, etc.	13. Supervision and evaluation by: Continuous leader checks, buddy system, situation reports, etc.
	L	M	H	E		L	M	H	E		
Cold Weather Injuries			H		Temperature Zone IV guidelines for clothing and equipment Tent and Stoves erected behind positions; 1/3 force man's positions, 2/3 force in heated tent's; rotate Soldiers every 30 minutes from positions to warming shelters; ensure adequate fuel		M			PCC/PCIs of cold weather clothing; adequate number of tents with operational stoves and adequate fuel; Tent and Stove Drill rehearsed; guidelines from USARAK Pamphlet 385-4 utilized for Tent & Stove operations Squad Leaders/Team Leaders ensure rotation from positions to shelters; buddy checks; medic conducts checks of Soldiers returning to shelters; PL/PSG supervise and ensure they are part of the rotation to heated shelters	Medical personnel conduct frequent checks of personnel to mitigate problems before they become casualties Buddy up experienced personnel with new troops
14. Remaining Risk Level After Countermeasures are Implemented: (circle one) Battalion Commander LOW (L) MEDIUM (M) HIGH (H) EXTREMELY HIGH (E)										

Scenario 2

You are the commander of Co. B, 2/287 INF (light) and are currently participating in Operation Arctic Warlord, a major NATO winter exercise in northern Norway designed to measure your unit's war fighting capabilities on a cold, snow covered battlefield. Your company completed a forced ski march about 6 hrs. ago and is now finishing up the last maintenance tasks for the day. The troops did very well on the march, arriving in the new area of operation a full hour ahead of the rest of the battalion. It appears your pre-exercise training back at Ft. Freezomo has paid off. Your Soldiers have been eating and drinking well, but some appear to be a little run down from the march. It is now 2030 hrs. At 2300 (about two hours after racking out) you are wakened by the Bn. commander and told Co. B must be prepared to move out at 0900. You have been tasked to help 1st Bn. secure an airfield 3 km away. He gives you a brief order defining the situation. You will depart on skis and move x/country linking up with 1st Bn. just south of the airfield. From there you will take all orders from 1st Bn. commander until you are relieved by another unit the following day. You must provide your own food, ammo, and other mission essentials, however your ahkios will be sent forward by SUSV later in the day.

Though you don't relish the tasking, you know your Soldiers have been eager to prove themselves during the exercise and will handle the mission well. You are fortunate that Co. B is full of highly qualified, cold weather warriors who have been training in these -20° to -30°F temperatures since the beginning of last month. You decide the troops can sleep until 0500; 4 hrs. will be sufficient time to prepare for the mission. The temperature is expected to rise about 20 degrees by

MISSION: *Operation Arctic Warlord Move to and Conduct Link-up to secure airfield* *UNIT:* *B Co 2/287 IN*

DATE/TIME:

LOCATION: *Norway* *TERRAIN DESCRIPTION:* *Flat, few trees*

PART I. Identify & Assess Operational Areas / Conditions that are Inherently Risky.

Write key mission information pertaining to the listed operational elements under ***assessment criteria****. Using the Risk Assessment Matrix for Cold Weather Operations (preceding page), write the number which most accurately defines the status of the operational element in the appropriate* ***risk value*** *block. Total the values and assign an* ***overall risk level*** *to the operation; move on to PART II…*

ELEMENT	ASSESSMENT CRITERIA	RISK VALUE
Planning	*FRAGO; adequate*	**4**
Mission Control	*OPCON; night tactical*	**5**
Soldier Endurance	*Acclimated; adequate*	**2**
Soldier Selection	*Complex; highly qualifed*	**3**
Weather	*Wind Chill to -35 F; 8-24 hours*	**6**
Terrain	*Flat; cross country*	**3**
Rest & Maintenance	*About 6 hours; adequate*	**3**

OVERALL RISK LEVEL: ***High*** ***TOTAL:*** ***26***

1. Organization and Unit: Infantry Company		2. Page __1__ of __1__
3. Mission/Task: Operation Arctic Warlord Move to and Conduct Link-up to secure airfield	4. Date/Time Group Begin: 0500 End: 1500	5. Date Prepared:
6. Prepared by: (rank, name, duty position) CPT WHO		
7. Operational phase in which the mission/task will be conducted: Operation Arctic Warlord		

8. Identified Hazards	9. Assess the Hazards: Initial Risks:				10. Develop Control Measures for Identified Hazards: Specific measures taken to reduce the probability and severity of a hazard	11. Make Risk Decisions: Remaining risks:				12. How to Implement Controls: Include SOPs, references, written and verbal orders, etc.	13. Supervision and evaluation by: Continuous leader checks, buddy system, situation reports, etc.
	L	M	H	E		L	M	H	E		
Cold Weather Injuries			H		Temperature Zone IV guidelines for clothing and equipment All Soldiers start movement cool; 1 ahkio group per platoon; stripped of all but tent and stove equipment; rehearse link-up procedures to with 1st battalion to prevent Soldiers from becoming static at completion of movement; soldier load no more than 40 pounds (sleeping bags carried); remainder of equipment brought forward by SUSV; trail breaking element moves one hour prior, establishes and marks trail; slow rate of march for all Soldiers top prevent overheating		M			PCC/PCIs of cold weather clothing; equipment checks of skis and bindings; rehearsals of movement procedures and actions at halts; halts are less than 10 minutes to prevent Soldiers from becoming chilled Tent and Stove Drill rehearsed; guidelines from USARAK Pamphlet 385-4 utilized for Tent & Stove operations; medic conducts checks of Soldiers at established checkpoints; potential cold weather injuries are dealt with immediately	Medical personnel conduct frequent checks of personnel to mitigate problems before they become casualties Buddy up experienced personnel with new troops

14. Remaining Risk Level After Countermeasures are Implemented: (circle one) Battalion Commander
LOW (L) MEDIUM (M) HIGH (H) EXTREMELY HIGH (E)

15. Risk Decision Authority Level: (approval authority signature block) Battalion Commander _____
If initial risk level is medium, high or extremely high, brief risk decision authority at that level on controls and countermeasure used to

Final Thoughts

- ***Remember:***
  - ***Implement the controls***
  - ***Supervise and evaluate***
- ***Risk Management is not an event, it is a continuous process.***
- ***There is no approved solution or textbook answer. You as a leader must be willing to take responsibility for your risk assessment.***
- ***The process should become second nature, muscle memory, reflexive.***
- ***Put tangible meaning to your risk assessment***

Cold Weather Risk Management Summary

Action: Manage risk in the cold weather environment

Condition: In a classroom environment and/or under any environmental condition, given the USARAK Pamphlet 385-4, Risk Management for Cold Weather Operations

Standard: Soldier conducted a thorough, written risk assessment IAW USARAK PAM 385-4, Risk Management for Cold Weather Operations